

Remarks

This paper is responsive to the Office Action mailed April 15, 2010 and is filed with a request for a two-month extension of time.

Claims 1-8, 12-19, and 23-29 are pending in the instant application. In the Action, the Office rejected claims 1-8, 12-19, and 23-29. Applicant hereby amends claims 1, 5, 7-8, 13, 16, and 18-19, and adds new claims 30 and 31. The amendments and new claims are fully supported by the application as filed.

Rejection – 35 U.S.C. § 103(a)

The Office has rejected claims 1-8, 12-19, and 23-29 under 35 U.S.C. § 103(a) as being unpatentable over Khanbabaee *et al.* (Tetrahedron, 1997, 53(1), 10725-32) in view of *Experimental Organic Reactions* (1957, 18, pages 504-505, English Translation). The Office states that “[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to separate the alpha and beta anomers of penta-O-galloyl-D-glucose from a mixture of the alpha and beta anomers via the method as instantly claimed since analogous separations via crystallization using water/methanol or acetone as solvents have been disclosed in the prior art.” Office Action of April 15, 2010, pages 4-5. Applicant respectfully traverses the rejection.

Applicant respectfully submits that Khanbabaee discloses the chromatographic separation of benzylated derivatives of alpha and beta PGG mixtures. Benzylated derivatives of PGG possess very different properties than the non-benzylated compounds. For example, the molecular weight of the benzylated derivatives is 2293 g/mol, while the molecular weight of the claimed compounds is 941 g/mol. Furthermore, the benzylated derivatives are relatively non-polar compounds, while alpha and beta PGG are highly polar because of their free hydroxyl groups. Applicant submits that for at least these reasons the separation of the benzylated derivatives described in Khanbabaee would not be seen by one of ordinary skill in the art as an indication that the separation of non-benzylated alpha and beta PGG as claimed is possible as well.

Also, it is instructive that Khanbabaee does not disclose the use crystallization to purify alpha or beta PGG. The method chosen by Khanbabaee to purify the materials is reversed phase chromatography, an expensive and more time consuming method than crystallization. Khanbabaee did not choose crystallization as a method to purify the materials even though the Office asserts that crystallization would have been an obvious choice to a person having ordinary skill in the art. Furthermore, the *Experimental Organic Reactions* reference does not provide any particular insight into why one of ordinary skill in the art would chose crystallization with the claimed solvents to separate the particular claimed compounds. Applicant respectfully submits that one of ordinary skill in the art reading Khanbabaee and *Experimental Organic Reactions* either individually or together would not find the claimed inventions obvious.

As for the articulated reasons as to why the claimed invention would be obvious, Applicant again respectfully disagrees with the Offices rationale. Rationale (A): The Office asserts that the instant claims combine prior art elements according to known methods to yield predictable results. The results of crystallization attempts of alpha and beta PGG were not predictable. Crystallization is a general method to separate and purify compounds, but far more often than not it cannot be applied because suitable solvents and conditions cannot be found to make compounds crystallize. The crystallization of molecules (especially larger molecules like PGG) is highly unpredictable. Rationale (C): The Office asserts that a known technique was used to improve similar devices (methods, or products) in the same way. Applicant respectfully submits that the results of the claimed methods were unexpected because of the previously known tendency of PGG to form gels (rather than crystals) in most solvents in which it dissolves. Rationale (E): The Office asserts that it was obvious to try choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success. As stated before, there is no reasonable expectation of success for crystallization, especially when working with larger molecules (e.g., molecular weight > 500 g/mol). In addition, the known high tendency of the PGG to form gels lowers the expectation of success even more. Applicant respectfully submits that for at least these reasons the claimed inventions are not obvious, and respectfully requests withdrawal of the rejection.

Application No. 10/597,395
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Response to Office Action

In the event the Commissioner should decide that any additional fee or fee deficiency is due, the Commissioner is hereby authorized to charge any and all fees incurred as a result of entering or considering this document to deposit account number 03-0172.

Respectfully submitted,

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